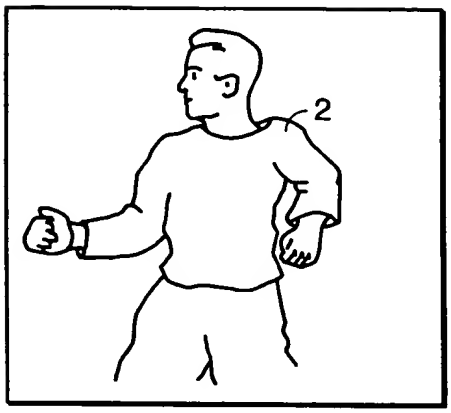

FIG. 1A

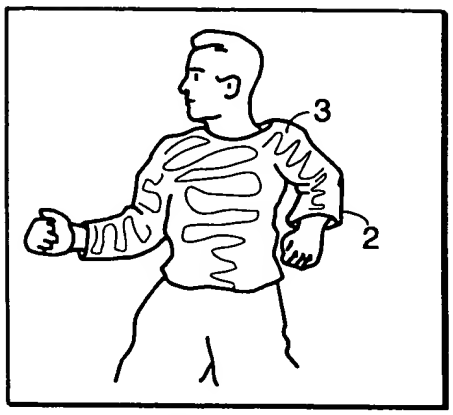

FIG. 1B

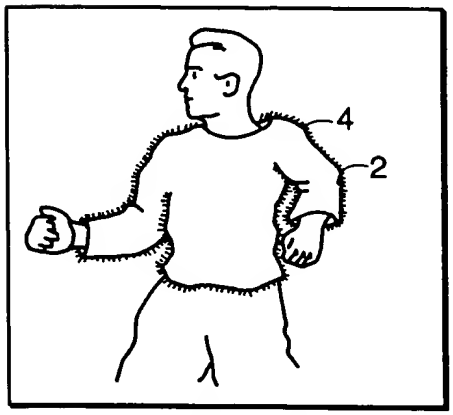

FIG. 1C

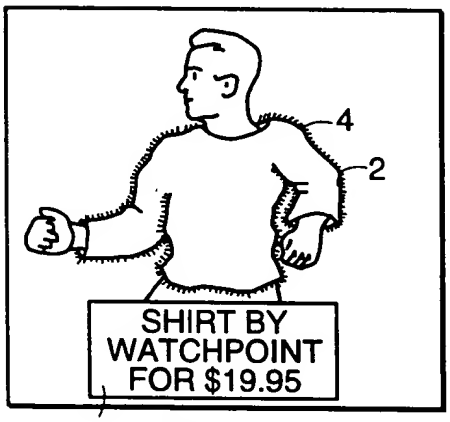

FIG. 1D

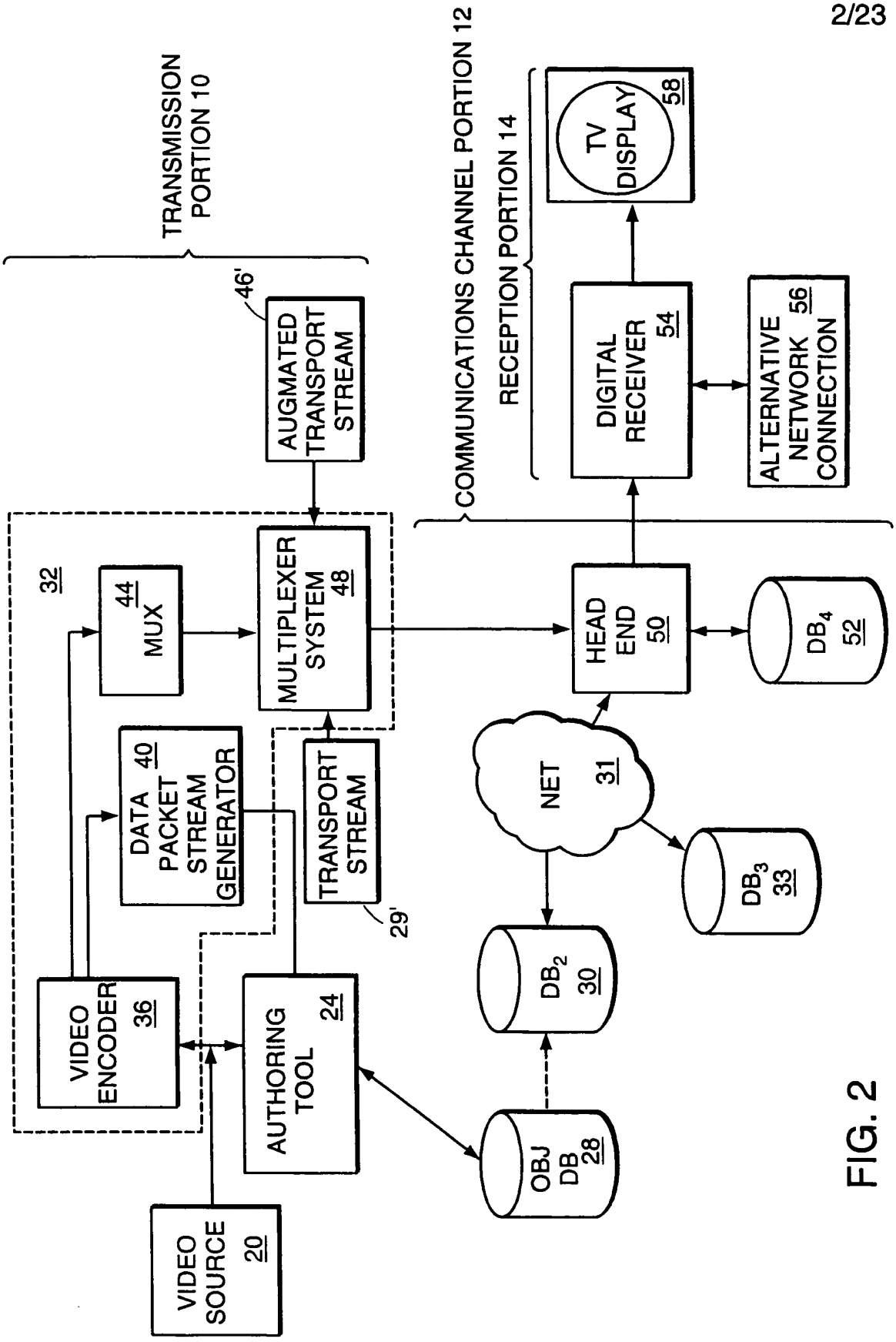
TRANSMISSION PORTION 10
COMMUNICATIONS CHANNEL PORTION 12
RECEPTION PORTION 14
TV DISPLAY 58
DIGITAL RECEIVER 54
ALTERNATIVE NETWORK CONNECTION 56
AUGMATED TRANSPORT STREAM
46'
32
44 MUX
MULTIPLEXER SYSTEM 48
HEAD END 50
DB4 52
DATA PACKET STREAM GENERATOR 40
TRANSPORT STREAM
29'
NET 31
DB3 33
VIDEO ENCODER 36
AUTHORING TOOL 24
DB2 30
OBJ DB 28
VIDEO SOURCE 20

FIG. 2

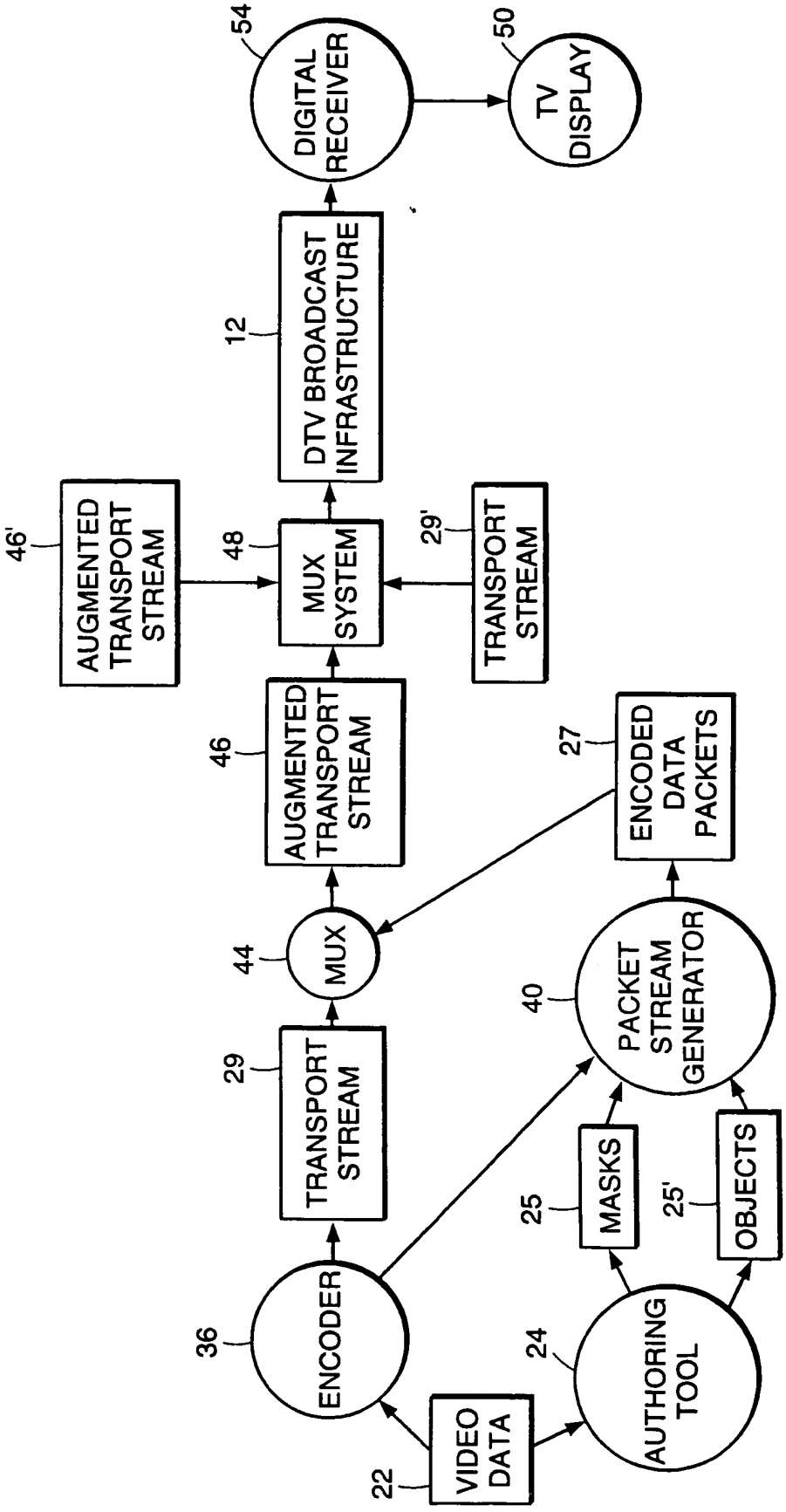
54
DIGITAL RECEIVER
50
TV DISPLAY
12
DTV BROADCAST INFRASTRUCTURE
46'
AUGMENTED TRANSPORT STREAM
48
MUX SYSTEM
29'
TRANSPORT STREAM
46
AUGMENTED TRANSPORT STREAM
27
ENCODED DATA PACKETS
44
MUX
40
PACKET STREAM GENERATOR
29
TRANSPORT STREAM
25
MASKS
25'
OBJECTS
36
ENCODER
24
AUTHORING TOOL
22
VIDEO DATA

FIG. 2A

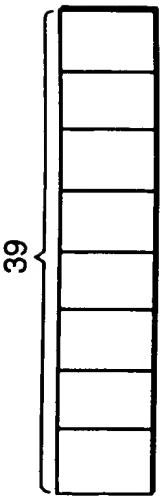

FIG. 2B

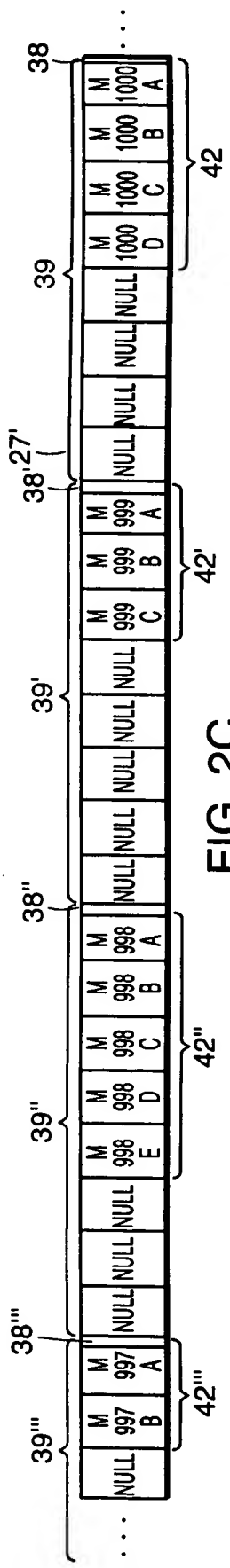

FIG. 2C

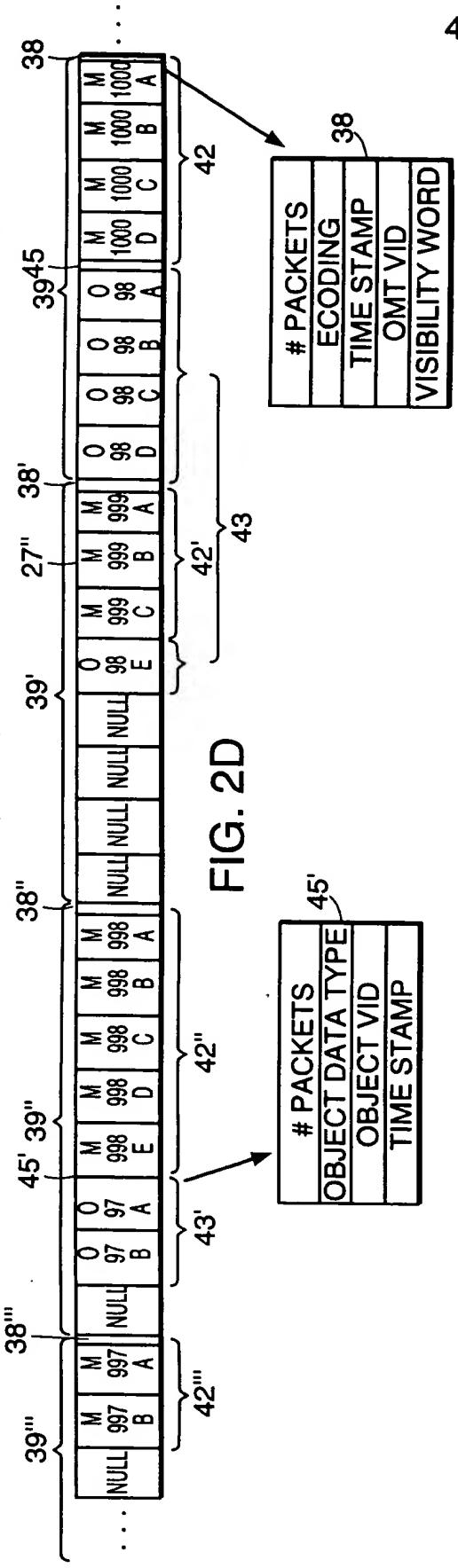

FIG. 2D

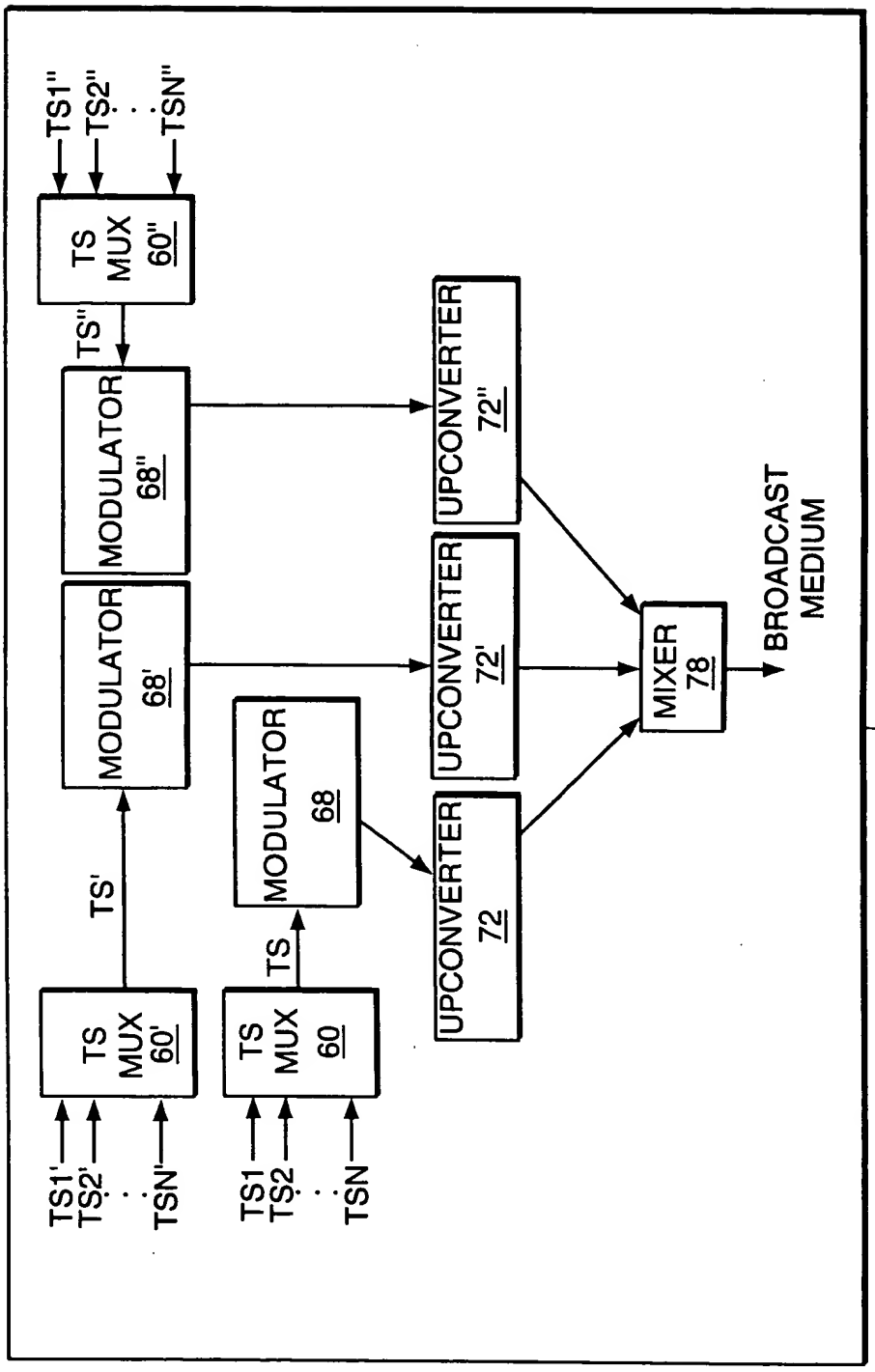
TS1"
TS2"
TSN"
TS MUX 60"
TS"
MODULATOR 68"
MODULATOR 68'
MODULATOR 68
TS'
TS
TS MUX 60'
TS MUX 60
TS1'
TS2'
TSN'
TS1
TS2
TSN
UPCONVERTER 72"
UPCONVERTER 72'
UPCONVERTER 72
MIXER 78
BROADCAST MEDIUM
48

FIG. 3

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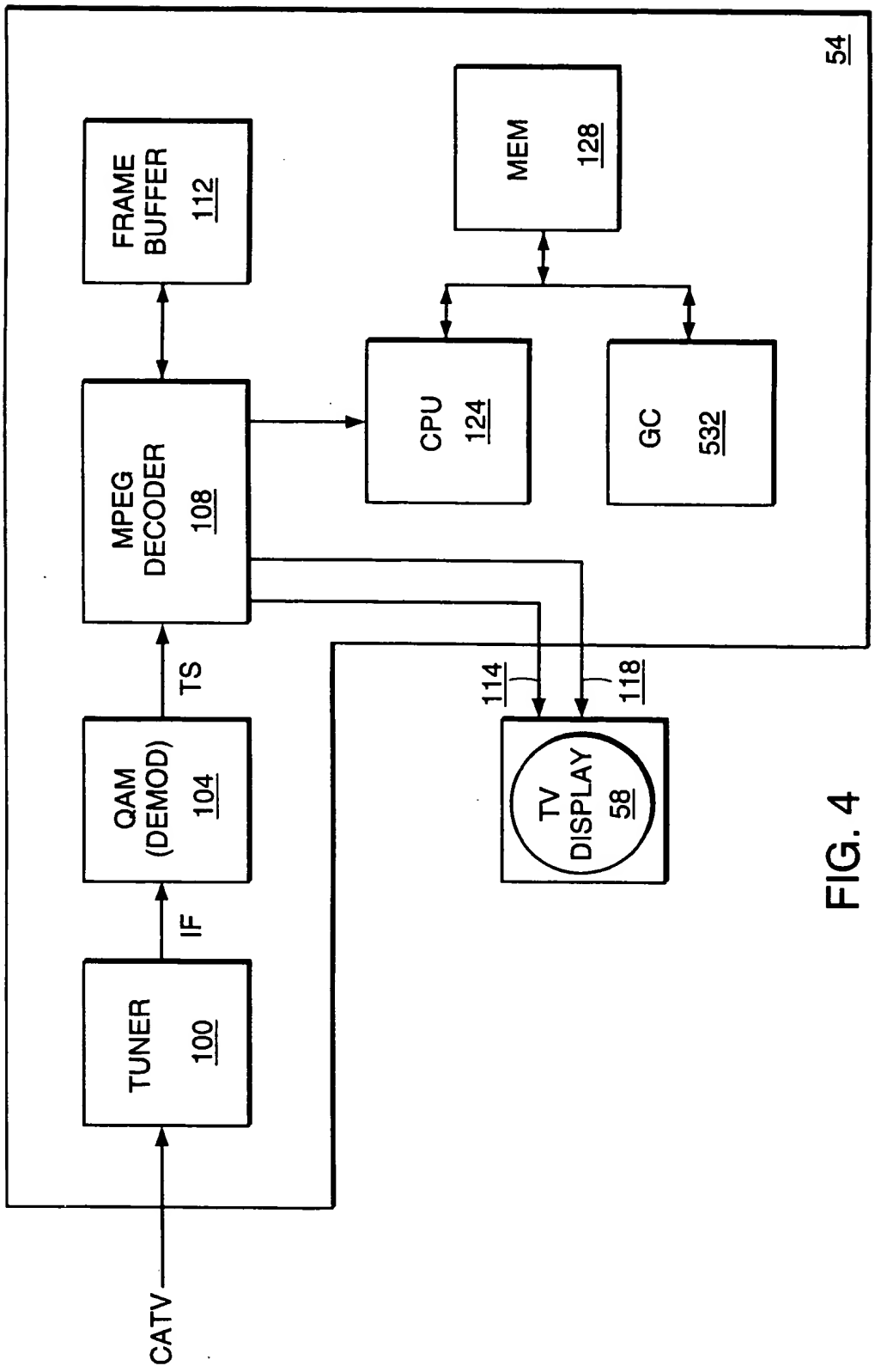
54
FRAME BUFFER 112
MEM 128
CPU 124
GC 532
MPEG DECODER 108
TS
QAM (DEMOD) 104
IF
TUNER 100
CATV
114
118
TV DISPLAY 58

FIG. 4

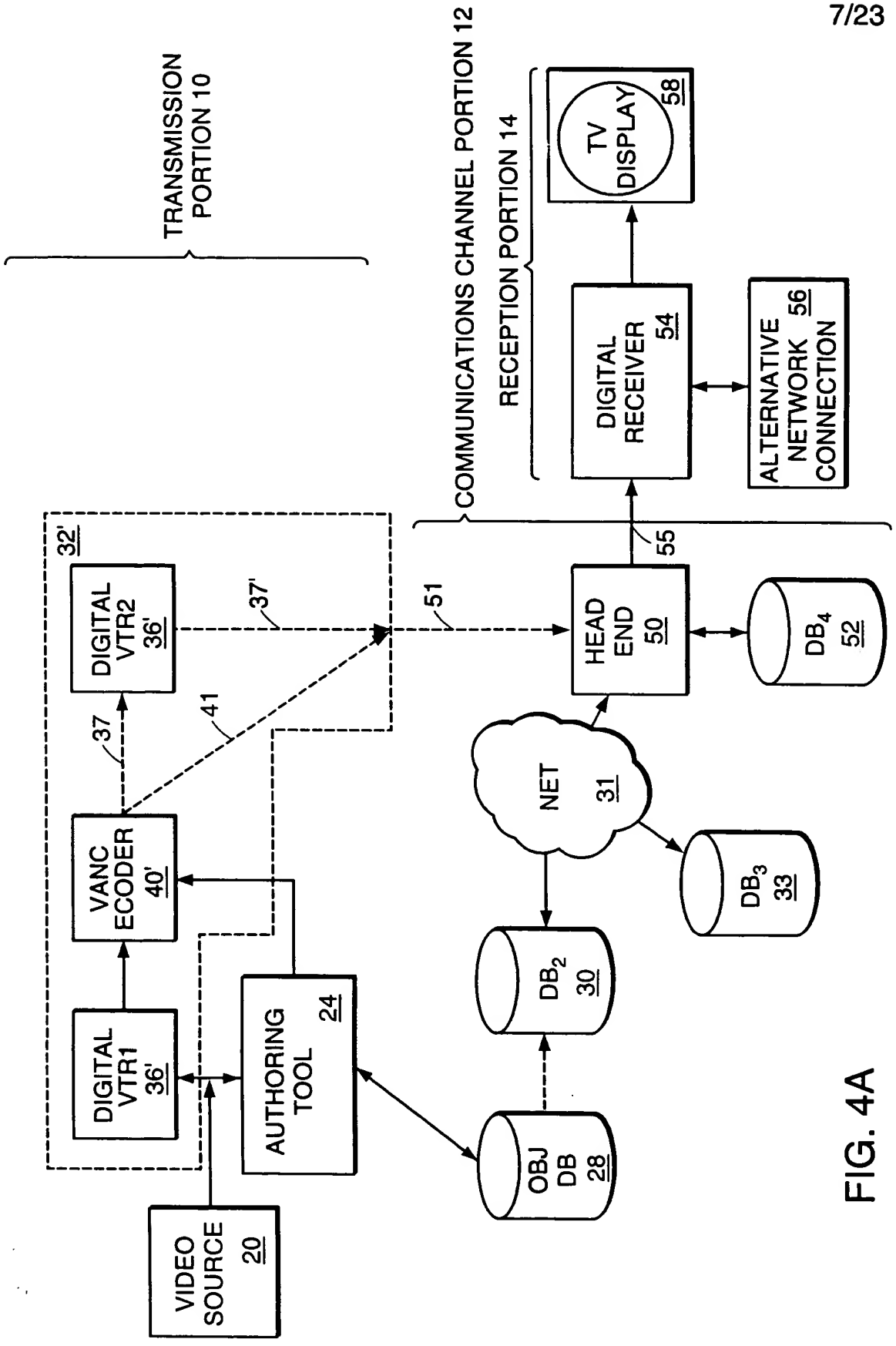
TRANSMISSION PORTION 10
COMMUNICATIONS CHANNEL PORTION 12
RECEPTION PORTION 14
TV DISPLAY 58
DIGITAL RECEIVER 54
ALTERNATIVE NETWORK CONNECTION 56
55
32'
DIGITAL VTR2 36'
37'
51
HEAD END 50
DB4 52
41
37
NET 31
VANC ECODER 40'
DB3 33
DB2 30
DIGITAL VTR1 36'
AUTHORING TOOL 24
OBJ DB 28
VIDEO SOURCE 20

FIG. 4A

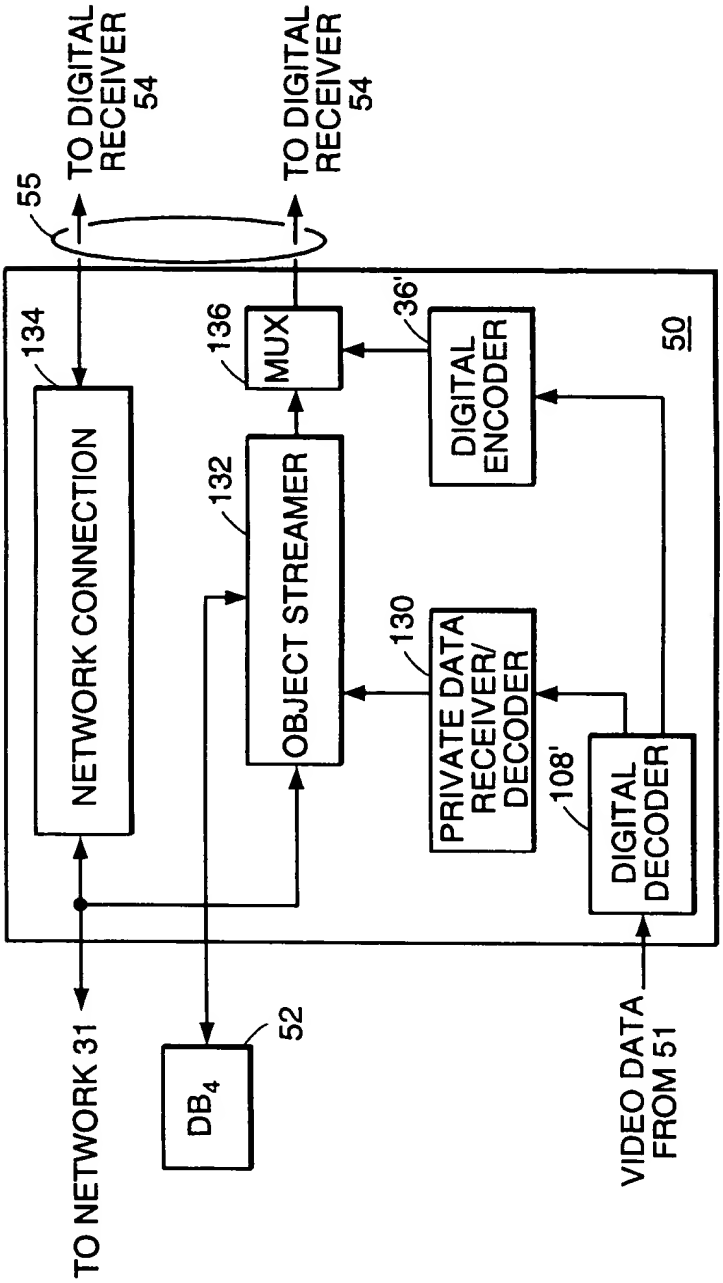
TO DIGITAL RECEIVER 54
TO DIGITAL RECEIVER 54
55
134
NETWORK CONNECTION
136
MUX
36'
DIGITAL ENCODER
50
132
OBJECT STREAMER
130
PRIVATE DATA RECEIVER/ DECODER
108'
DIGITAL DECODER
TO NETWORK 31
DB4
52
VIDEO DATA FROM 51

FIG. 4B

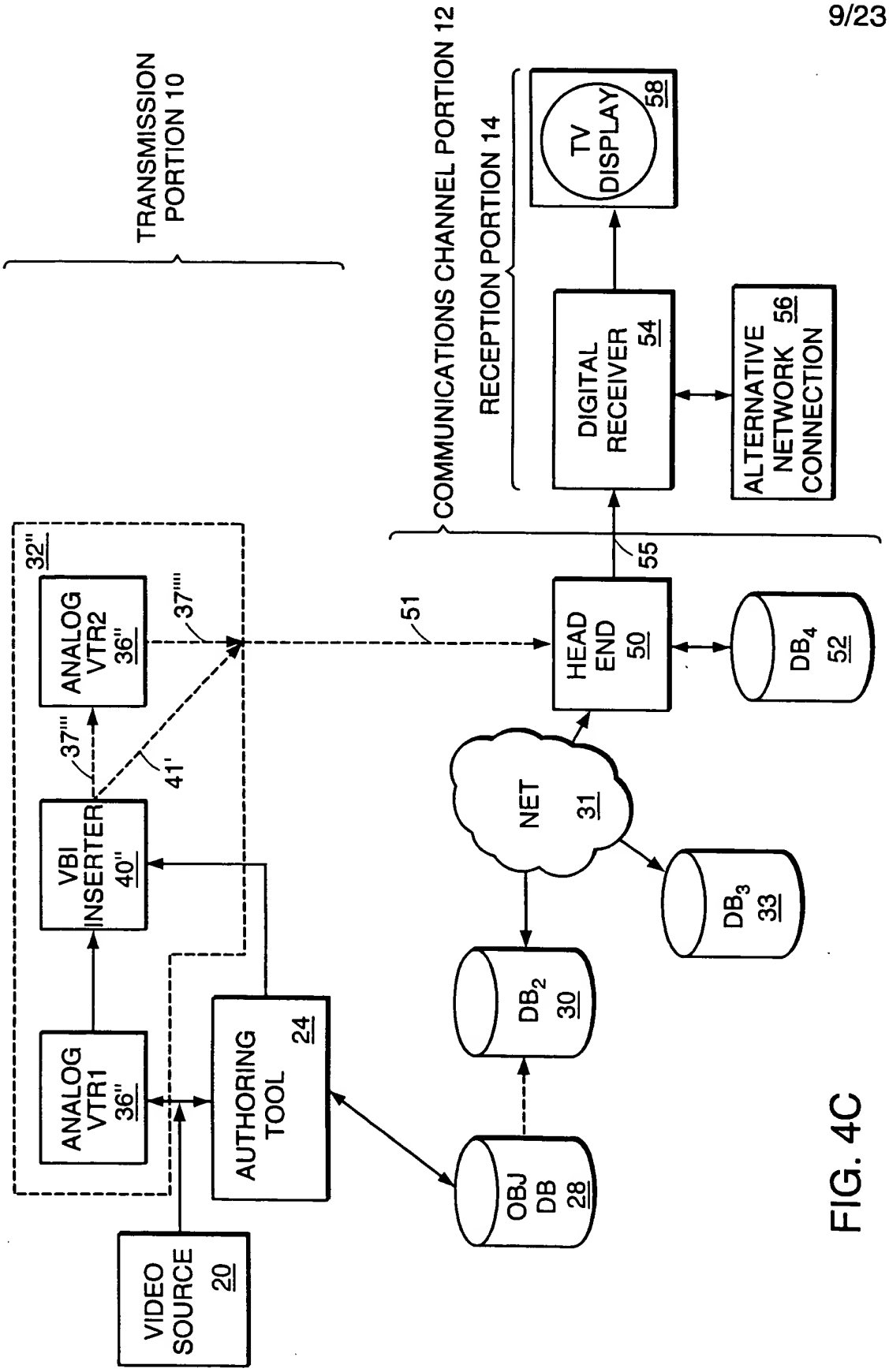
TRANSMISSION PORTION 10
COMMUNICATIONS CHANNEL PORTION 12
RECEPTION PORTION 14
TV DISPLAY 58
DIGITAL RECEIVER 54
ALTERNATIVE NETWORK CONNECTION 56
HEAD END 50
55
51
DB_4 52
32"
ANALOG VTR2 36"
37""
37'''
41'
VBI INSERTER 40"
NET 31
DB_3 33
DB_2 30
ANALOG VTR1 36"
AUTHORING TOOL 24
OBJ DB 28
VIDEO SOURCE 20

FIG. 4C

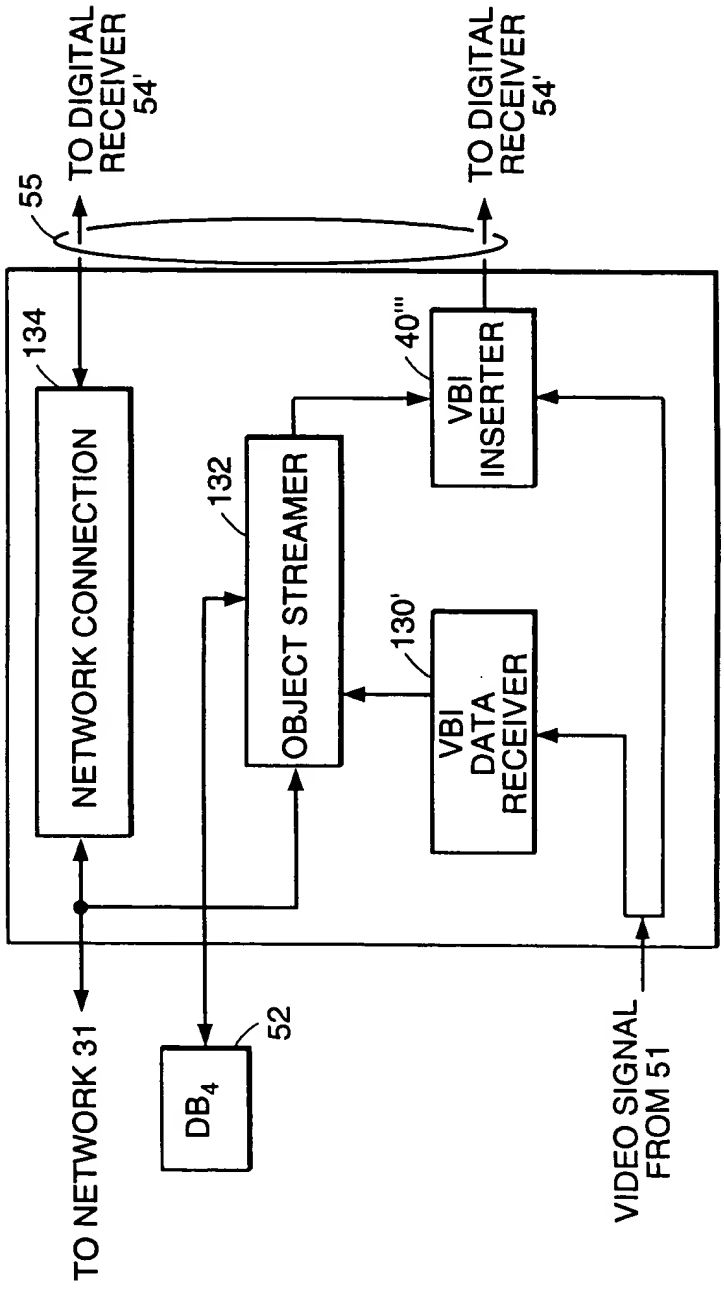
TO DIGITAL RECEIVER 54'
TO DIGITAL RECEIVER 54'
55
134
NETWORK CONNECTION
132
OBJECT STREAMER
40'''
VBI INSERTER
130'
VBI DATA RECEIVER
52
DB4
TO NETWORK 31
VIDEO SIGNAL FROM 51

FIG. 4D

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FIG. 5-1	FIG. 5-2

FIG. 5

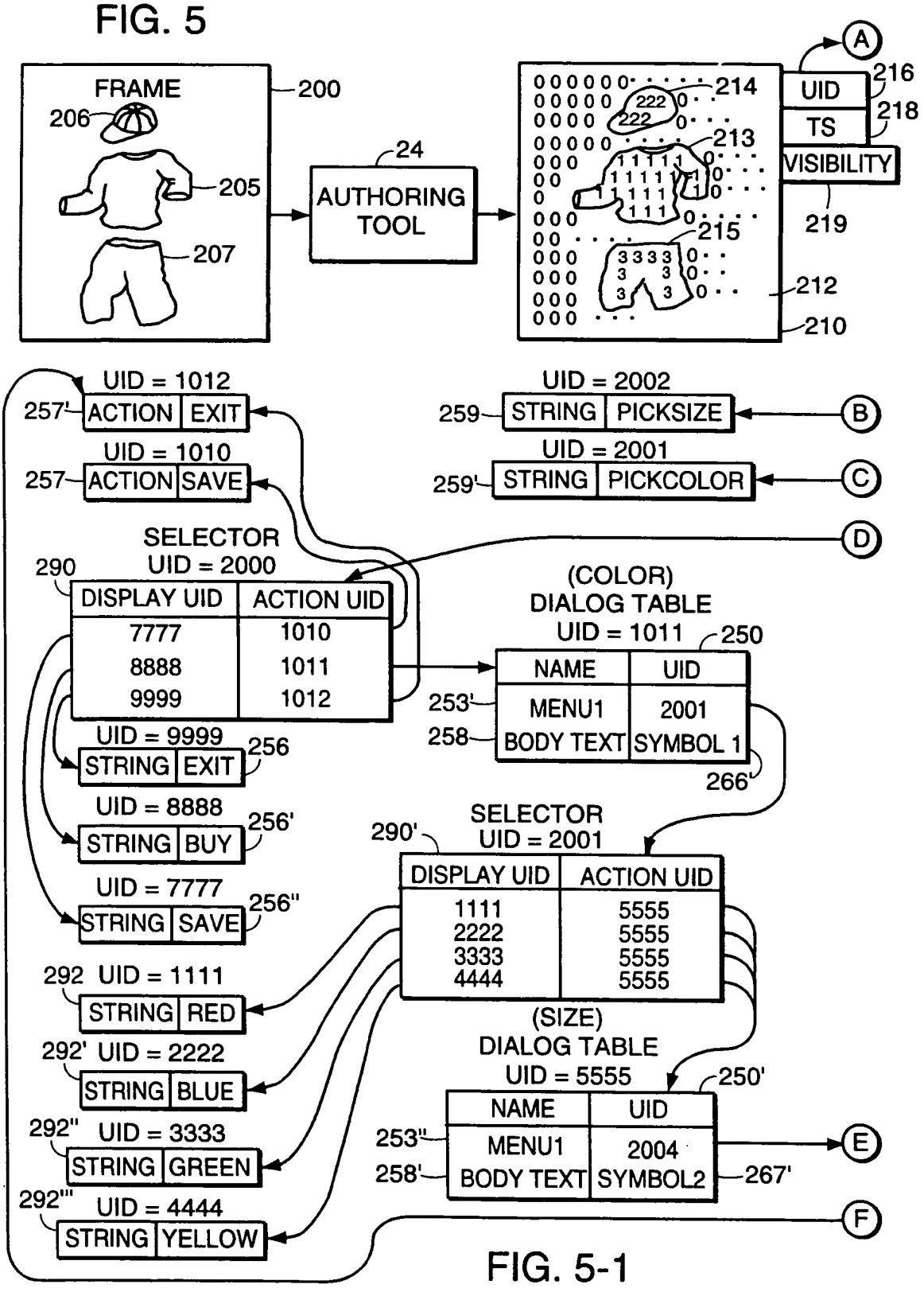

FIG. 5-1

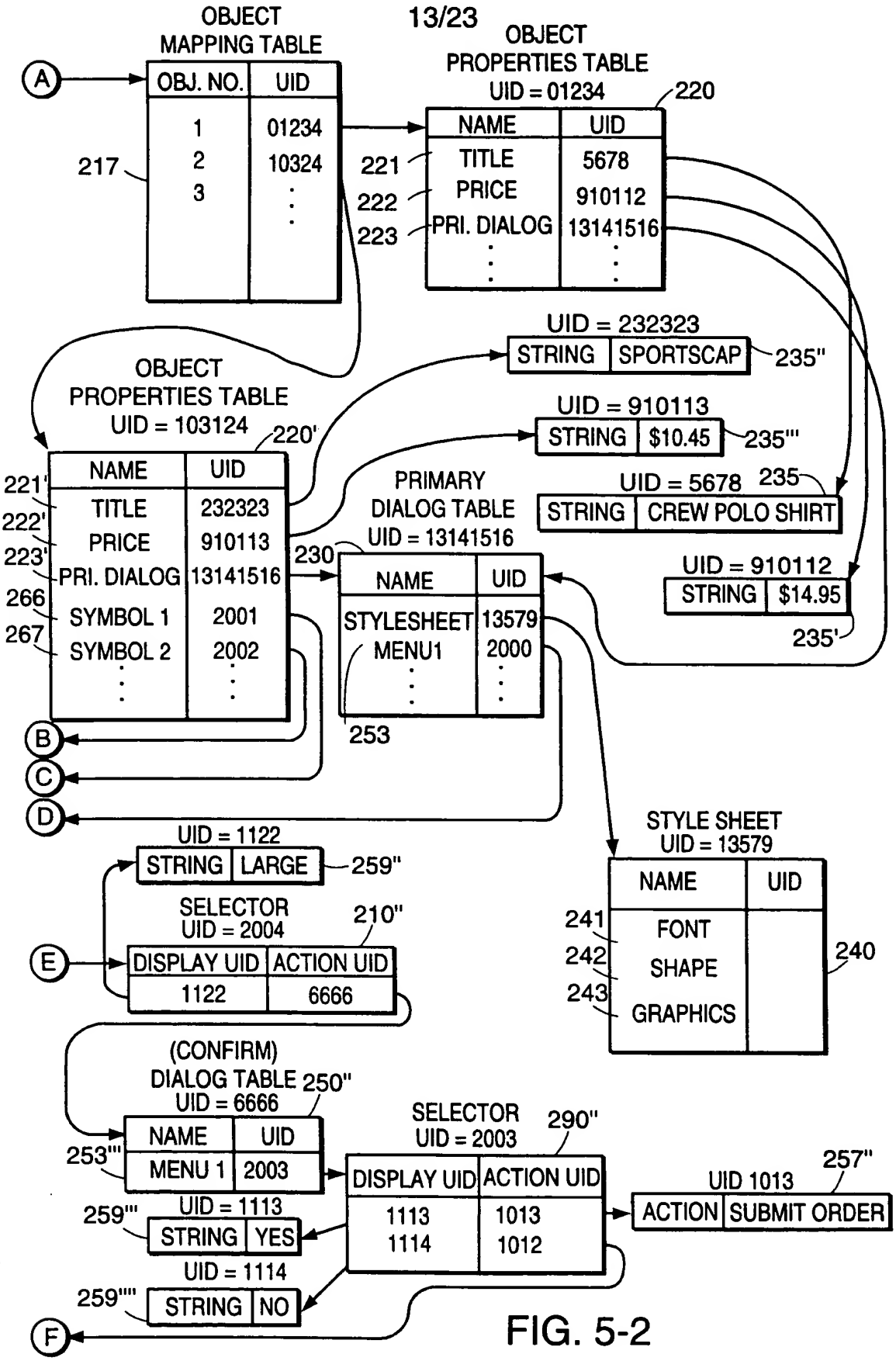
OBJECT MAPPING TABLE
OBJ. NO.
UID
1
2
3
01234
10324
217
A
OBJECT PROPERTIES TABLE
UID = 01234
220
NAME
UID
TITLE
PRICE
PRI. DIALOG
5678
910112
13141516
221
222
223
UID = 232323
STRING
SPORTSCAP
235"
OBJECT PROPERTIES TABLE
UID = 103124
220'
NAME
UID
TITLE
PRICE
PRI. DIALOG
SYMBOL 1
SYMBOL 2
232323
910113
13141516
2001
2002
221'
222'
223'
266
267
UID = 910113
STRING
$10.45
235'''
PRIMARY DIALOG TABLE
UID = 13141516
230
NAME
UID
STYLESHEET
MENU1
13579
2000
253
UID = 5678
235
STRING
CREW POLO SHIRT
UID = 910112
STRING
$14.95
235'
B
C
D
UID = 1122
STRING
LARGE
259"
SELECTOR
UID = 2004
210"
DISPLAY UID
ACTION UID
1122
6666
E
STYLE SHEET
UID = 13579
NAME
UID
FONT
SHAPE
GRAPHICS
241
242
243
240
(CONFIRM) DIALOG TABLE
UID = 6666
250"
NAME
UID
MENU 1
2003
253'''
SELECTOR
UID = 2003
290"
DISPLAY UID
ACTION UID
1113
1114
1013
1012
UID 1013
257"
ACTION
SUBMIT ORDER
UID = 1113
STRING
YES
259'''
UID = 1114
STRING
NO
259''''
F

FIG. 5-2

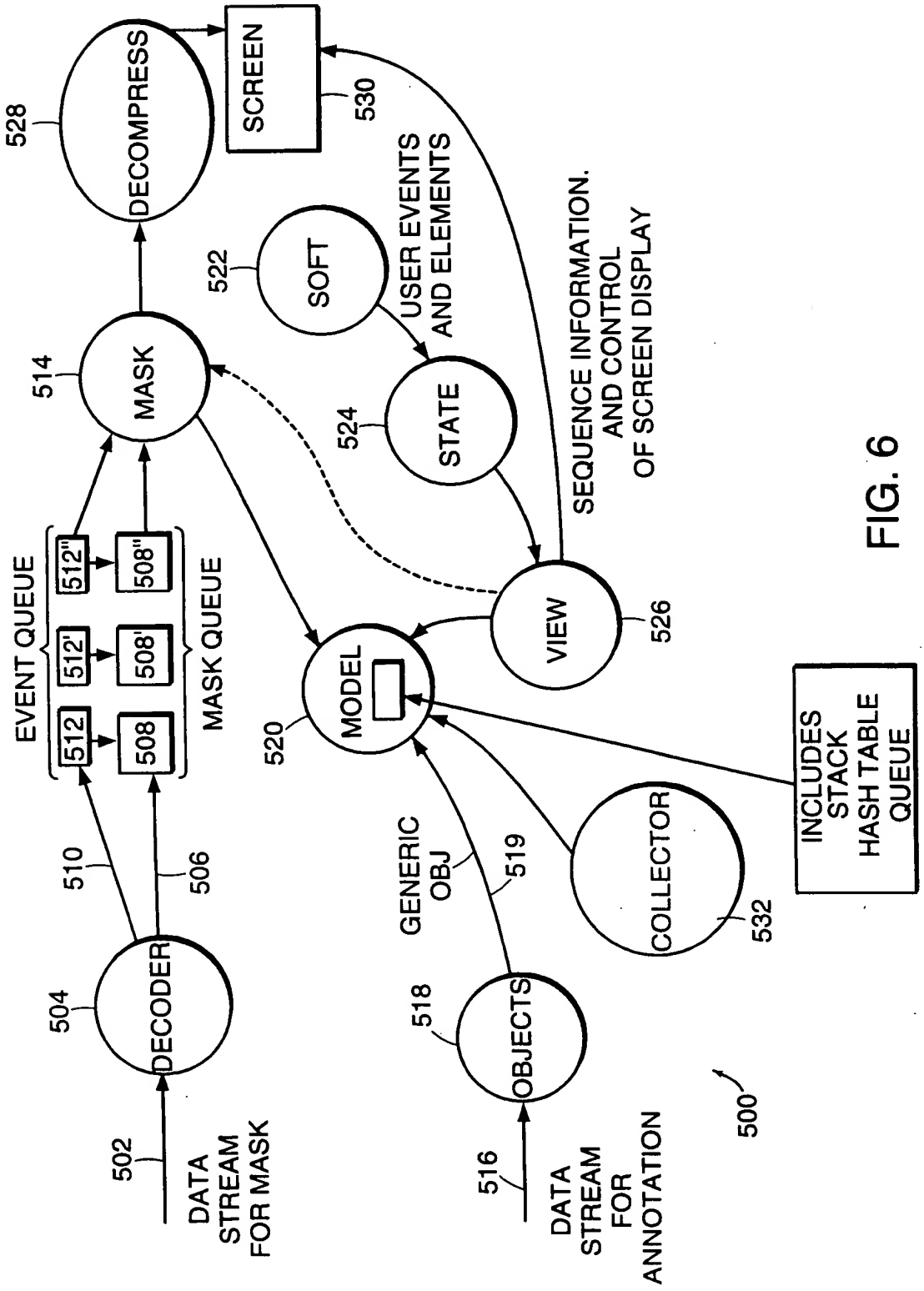
DATA STREAM FOR MASK
502
DECODER
504
510
506
EVENT QUEUE
512
512'
512"
MASK QUEUE
508
508'
508"
MASK
514
DECOMPRESS
528
SCREEN
530
SOFT
522
USER EVENTS AND ELEMENTS
STATE
524
SEQUENCE INFORMATION. AND CONTROL OF SCREEN DISPLAY
VIEW
526
MODEL
520
INCLUDES STACK HASH TABLE QUEUE
GENERIC OBJ
519
COLLECTOR
532
OBJECTS
518
DATA STREAM FOR ANNOTATION
516
500

FIG. 6

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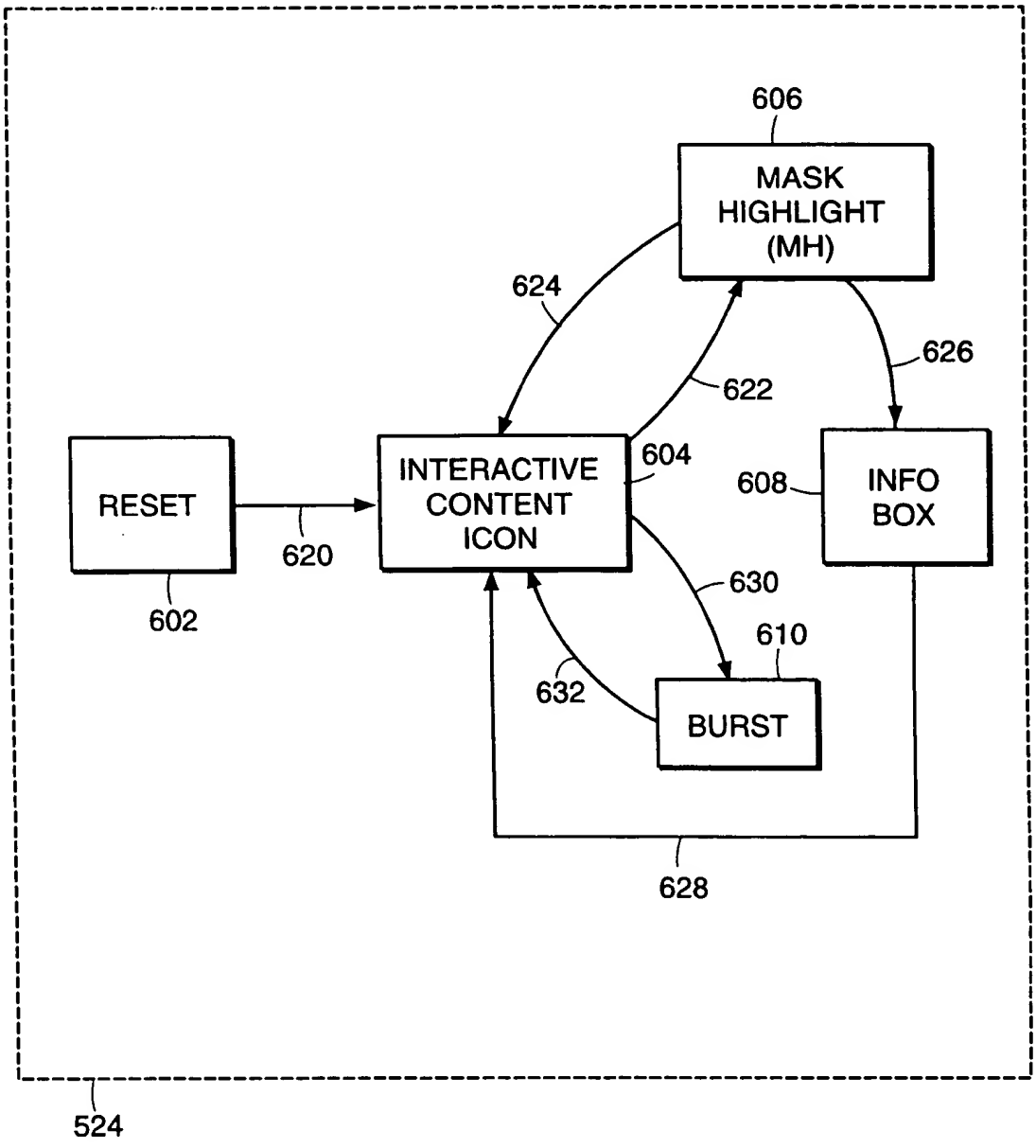
606
MASK HIGHLIGHT (MH)
624
626
622
RESET
INTERACTIVE CONTENT ICON
604
608
INFO BOX
620
602
630
610
632
BURST
628
524

FIG. 7

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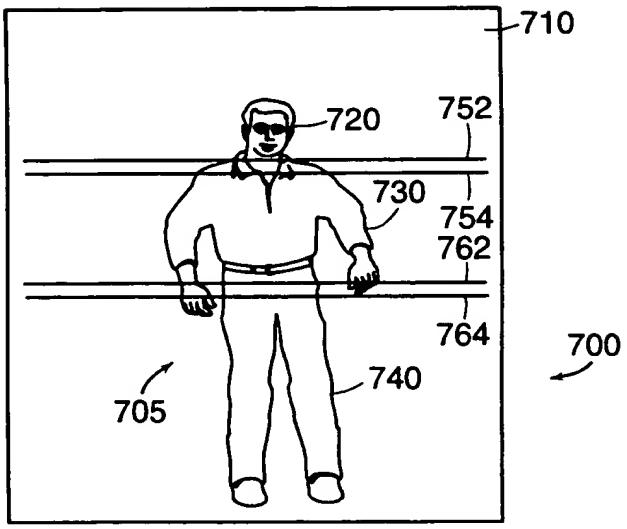

FIG. 9A

NO. ROWS (=3)
ROW 1: ($COLOR_1$, N_1), ($COLOR_2$, N_2), ($COLOR_3$,N_3), ... ($COLOR_N$, N_N)
ROW 2: N_1, N_2, N_3, ..., N_N
ROW 3: N_1, N_2, N_3, ..., N_N

FIG. 9B

(VALUE INDICATOR OF COLOR, RUN LENGTH, OFFSET)

FIG. 9C

NO. ROWS (=3)
ROW 1: ($COLOR_1$, $RUNLENGTH_1$,$OFFSET_1$), ($COLOR_2$, $RUNLENGTH_2$,$OFFSET_2$) ....($COLOR_N$, $RUNLENGTH_N$,$OFFSET_N$)
ROW 2: ($RUNLENGTH_1$,$OFFSET_1$), ($RUNLENGTH_2$,$OFFSET_2$),....($RUNLENGTH_N$,$OFFSET_N$)
ROW 3: ($RUNLENGTH_1$,$OFFSET_1$), ($RUNLENGTH_2$,$OFFSET_2$),....($RUNLENGTH_N$,$OFFSET_N$)

FIG. 9D

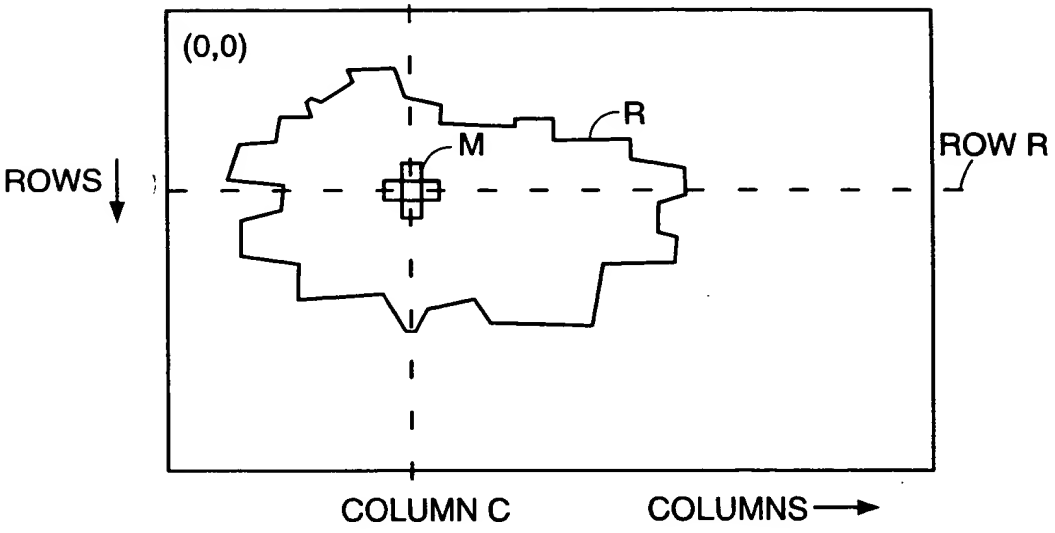

FIG. 10A

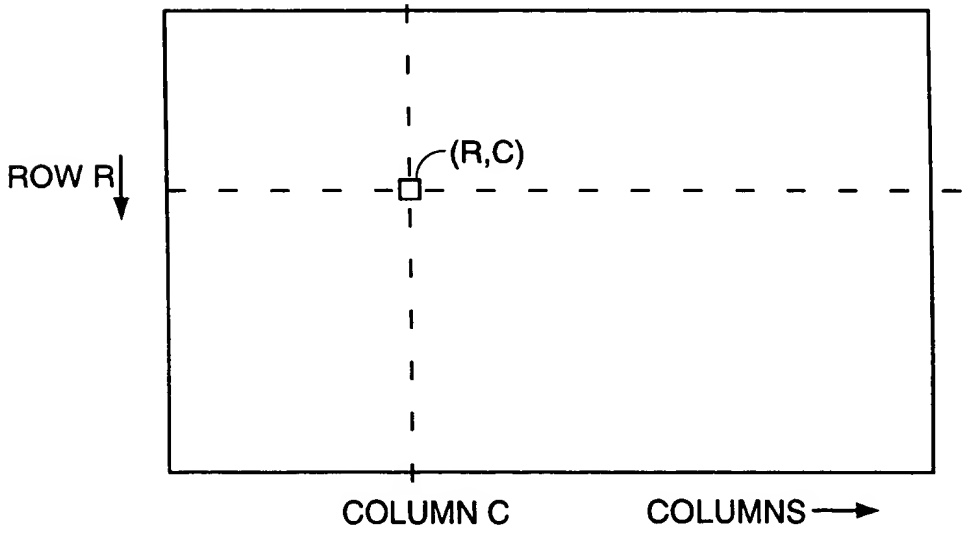

FIG. 10B

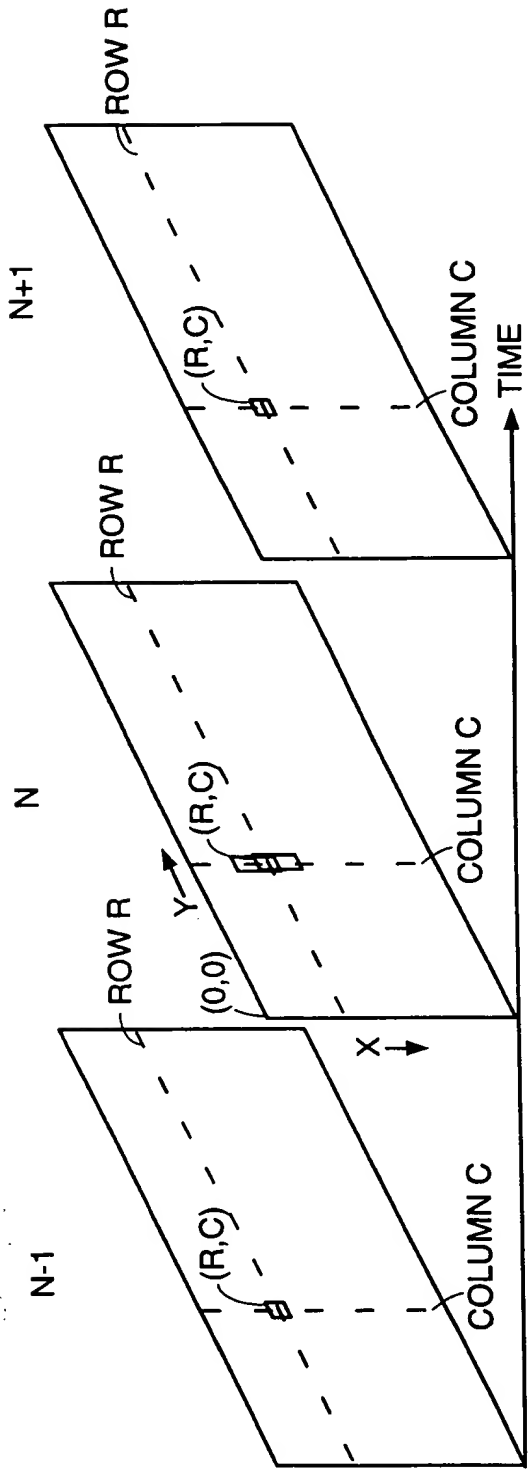

FIG. 11A

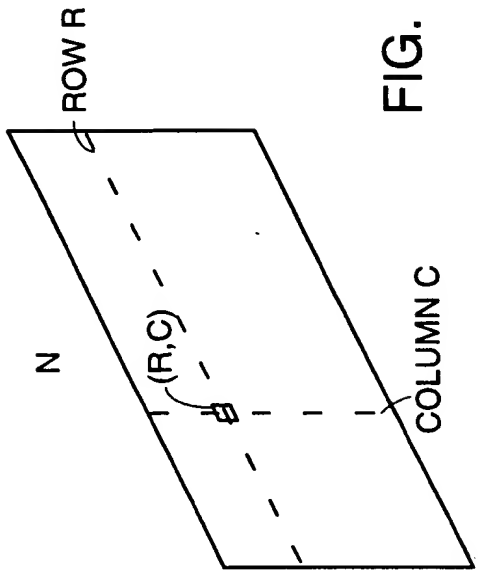

FIG. 11B

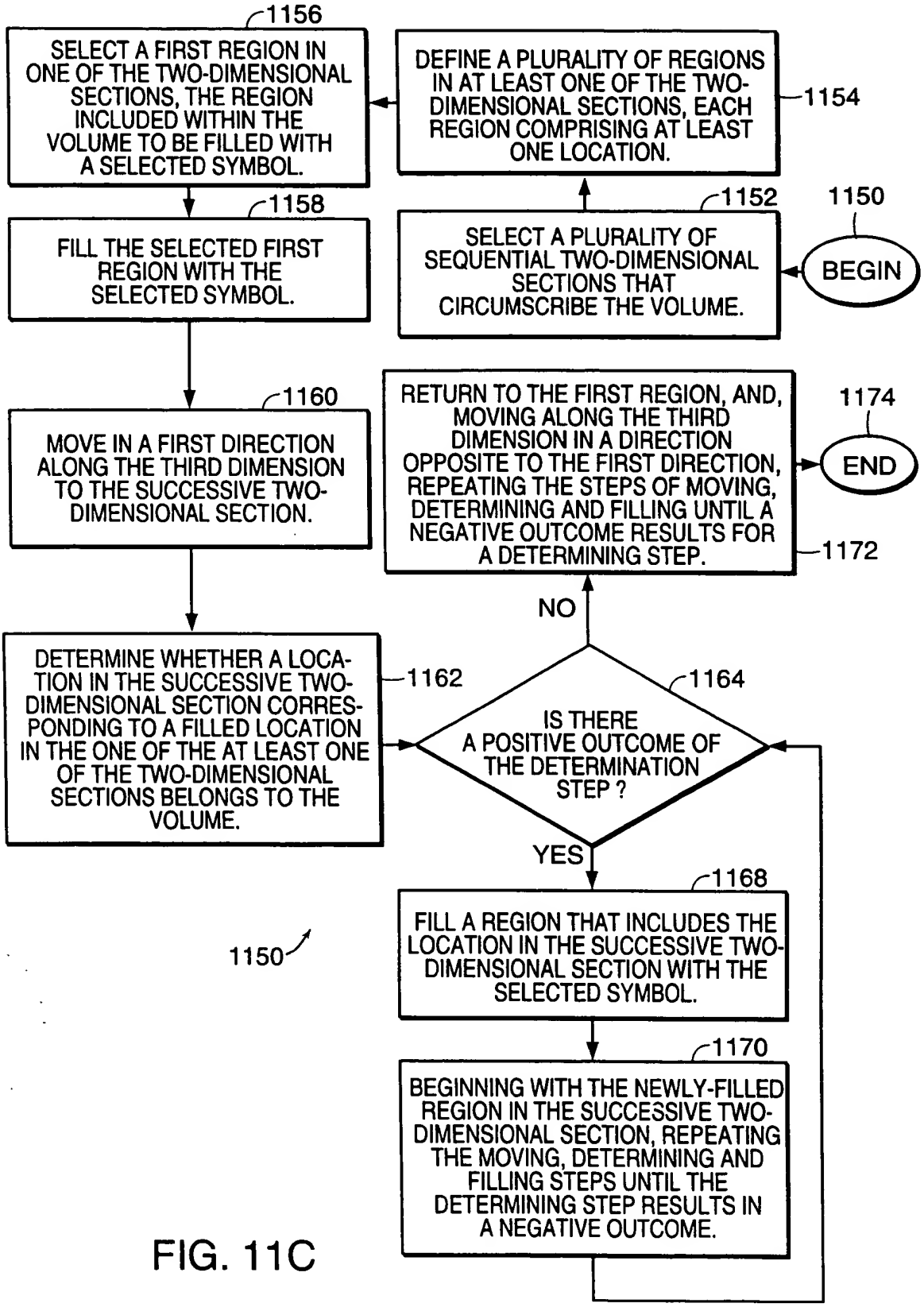
1156
SELECT A FIRST REGION IN ONE OF THE TWO-DIMENSIONAL SECTIONS, THE REGION INCLUDED WITHIN THE VOLUME TO BE FILLED WITH A SELECTED SYMBOL.
DEFINE A PLURALITY OF REGIONS IN AT LEAST ONE OF THE TWO-DIMENSIONAL SECTIONS, EACH REGION COMPRISING AT LEAST ONE LOCATION.
1154
1158
FILL THE SELECTED FIRST REGION WITH THE SELECTED SYMBOL.
1152
1150
SELECT A PLURALITY OF SEQUENTIAL TWO-DIMENSIONAL SECTIONS THAT CIRCUMSCRIBE THE VOLUME.
BEGIN
1160
MOVE IN A FIRST DIRECTION ALONG THE THIRD DIMENSION TO THE SUCCESSIVE TWO-DIMENSIONAL SECTION.
RETURN TO THE FIRST REGION, AND, MOVING ALONG THE THIRD DIMENSION IN A DIRECTION OPPOSITE TO THE FIRST DIRECTION, REPEATING THE STEPS OF MOVING, DETERMINING AND FILLING UNTIL A NEGATIVE OUTCOME RESULTS FOR A DETERMINING STEP.
1174
END
1172
NO
DETERMINE WHETHER A LOCATION IN THE SUCCESSIVE TWO-DIMENSIONAL SECTION CORRESPONDING TO A FILLED LOCATION IN THE ONE OF THE AT LEAST ONE OF THE TWO-DIMENSIONAL SECTIONS BELONGS TO THE VOLUME.
1162
1164
IS THERE A POSITIVE OUTCOME OF THE DETERMINATION STEP ?
YES
1168
FILL A REGION THAT INCLUDES THE LOCATION IN THE SUCCESSIVE TWO-DIMENSIONAL SECTION WITH THE SELECTED SYMBOL.
1170
BEGINNING WITH THE NEWLY-FILLED REGION IN THE SUCCESSIVE TWO-DIMENSIONAL SECTION, REPEATING THE MOVING, DETERMINING AND FILLING STEPS UNTIL THE DETERMINING STEP RESULTS IN A NEGATIVE OUTCOME.
1150

FIG. 11C

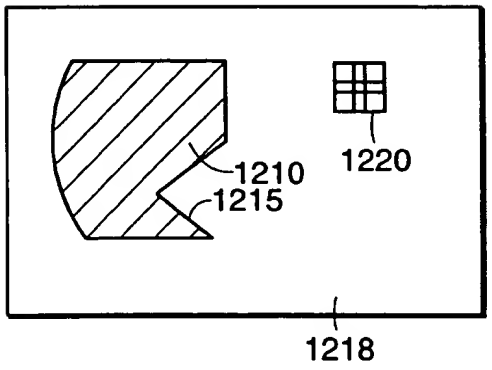

FIG. 12A

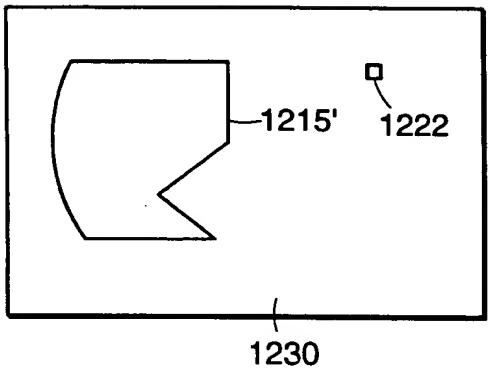

FIG. 12B

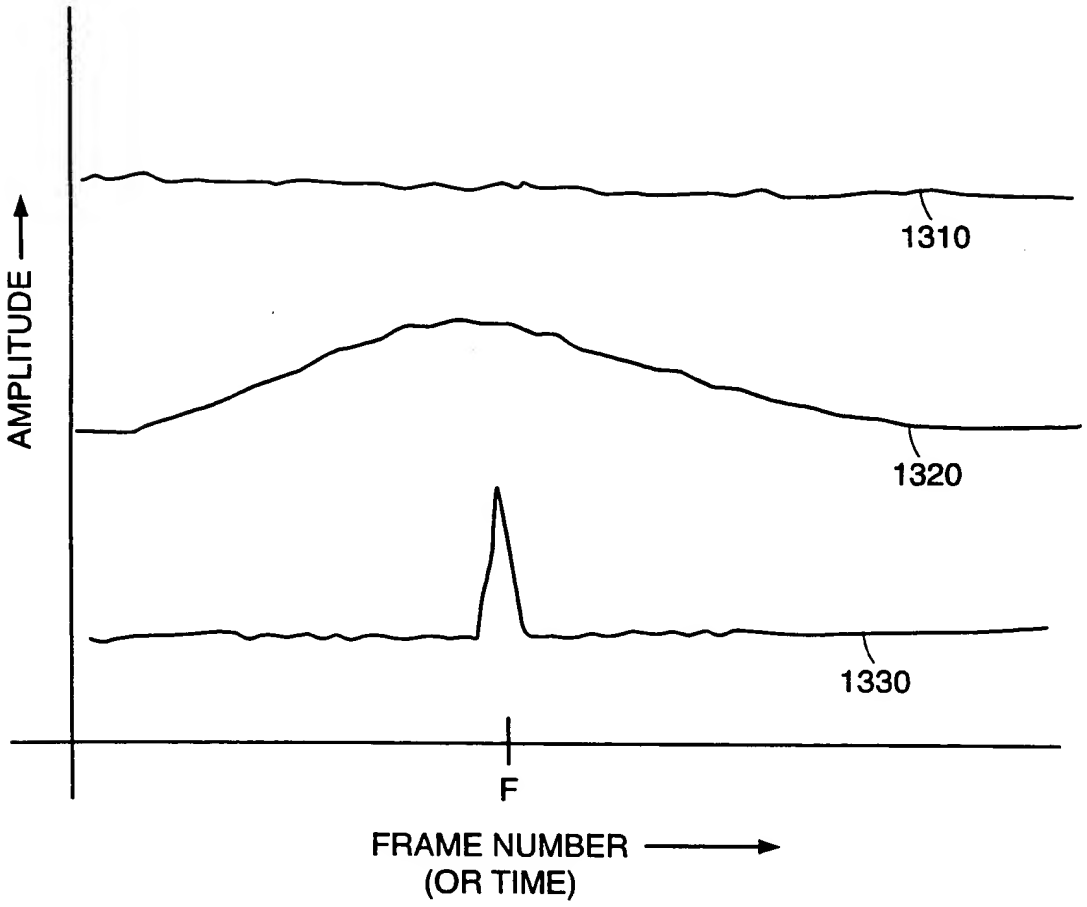

FIG. 13